

YOUR R&D PARTNER

Enabling sustainable performance in the biobased polymers industry

AN INNOVATIVE SME

AEP is an SME located in Area Science Park, a multi-disciplinary technological park in Trieste (Italy). Thanks to its applied R&D approach and several contacts with manufacturing companies, AEP is the ideal enabler between RTO's and industrial end users. Starting from technical and market requirements, AEP develops novel bio-based polymers. AEP validates them in real industrial formulations, covering the new products' development from the small quantities of the laboratory to the pre-industrial scale-up.

YOUR PARTNER OF CHOICE

AEP is your ideal choice for collaborative R&D and innovation projects. AEP expertise in the valorization of biomasses and agro-food by-product streams perfectly fits the technical challenges towards a circular economy in the polymers industry.

AEP's comprehensive approach includes strategic evaluation, technical feasibility, polymer chemistry, product testing, design of formulations, upscaling of chemical reactions, prototyping and benchmarking.

Biomasses &
agrofood
byproducts

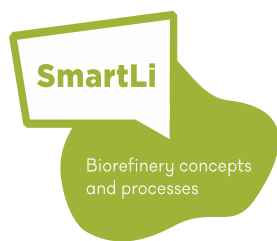
High value
performance
polymers

Strategies for
industrial
exploitation

EU COLLABORATIVE PROJECTS

Horizon 2020 is an unprecedented funding programme for collaborative R&D activities, intended to boost the competitiveness of the European economy. Among thousands of proposals, only excellent projects are granted. The ideal consortium is a harmonic blend of RTO's, SME's and industrial end users from different countries. Merging R&D expertise with industrial attitude, AEP adds real value to a consortia and plays an active role in successful R&D projects.

PROJECTS



SMART TECHNOLOGIES FOR THE CONVERSION OF INDUSTRIAL LIGNINS

AEP Polymers is a Partner of SmartLi, a three-year programme which aims to develop valorisation routes for lignin, for example, in plywood resins and composites.

This project has received funding from the Bio-Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 668467.

<http://clcinnovation.fi/activity/smartli/#Partners>



NEW BIOAROMATIC POLYMERS

Biobased resins are an emerging alternative for performance materials.

AEP has been working with RTOs and industrial partners to create brand new substances and materials starting from renewable resources and combining different chemical structures, from fatty acids to bio aromatics.

Cashew Nut Shell Liquid (CNSL) is a naturally occurring source of phenols. AEP developed a portfolio of industrial polymers from CNSL to deliver performing materials for demanding industrial applications in composites, polyurethanes and adhesives.

EXPERTISE

Chemistry on biomass derivatives: extraction, characterization, functionalization, support to LCA.

Design, optimization and upscaling of synthetic processes for polymers.

Quick scan and benchmarking of new materials' in industrial applications (composites, coatings, polyurethanes and adhesives).

Polymer science: design of biobased formulations with attention to process parameters, performances, cost and sustainability.

Application development: definition of technical requirements and new application sectors.

Lab scale prototyping to validate polymers and formulations (TRL=4/5).

Larger scale prototyping in collaboration with qualified industrial partners (TRL= 6/7).

LABORATORY

Our new modern lab is equipped to perform the following procedures:

- Chemical synthesis, optimization and upscaling
- Complete chemical characterization and QC of new materials
- Measurement of process-related parameters for polymeric formulations
- Performance tests on polymers and formulations:
 - Complete mechanical characterization
 - Determination of thermal properties
 - Small scale fire reaction
 - Chemical resistance
 - Ageing

